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*Liouville-type theorems for some elliptic equations and systems*

In this talk, we consider the problem of non-existence of solutions for some basic elliptic equations and systems with weights. Starting with Henon-Lane-Emden system, we present a Liouville-type theorem for bounded solutions in dimension  $N=3$  as well as the statement for the full Henon-Lane-Emden conjecture in higher dimensions. Since systems are normally much more complicated than equations, in higher dimensions we back to single equations (both second order and fourth order) to prove such theorems under some additional assumptions on solutions. This work has been done under supervision of N. Ghoussoub.